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| 09/885,362      | 06/20/2001  | Yakov Kogan          | CORE-69             | 4184             |

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EXAMINER

CHAN, EMILY Y

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2829

DATE MAILED: 11/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/885,362

Applicant(s)

KOGAN ET AL.

Examiner

emily y chan

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features that the further comprised at least one of the probe assembly in claims 2-4 and 36-39 and the fail safe mechanism in claim 8 must be shown or the feature(s) canceled from the claims 2-4, 8 and 36-39.

### *Specification*

The disclosure is objected to because of the following informalities: on page 10, "a second attachment mechanism 50" should be "a first attachment mechanism 50".

Appropriate correction is required.

## ABSTRACT LANGUAGE

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because for use of phraseology such as "apparatus and method are disclosed" and the word "comprises" recited. Correction is required. See MPEP § 608.01(b).

Furthermore, the abstract is too long.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

***Claim Rejections - 35 USC § 112***

Claims 2-4, 6-7, 11, 18, 20, 30 and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2 —4, and 36-39 the recited “further comprising at least one of said probe assembly” is unclear. Whether there is more than one probe assemblies in the apparatus or not is unclear.

Claim 7 duplicates claim 6.

Claim 11 recites the limitation “said motion stage”, claims 18 and 20 recites the limitation “said contactor portion of said semiconductor device”, and claim 48 recites “the step of detaching apart”. There is insufficient antecedent basis for this limitation in the claims 11, 18, 20 and 48.

In claim 30, “said second attachment means “ should be “said second attachment mechanism”.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al ('531) in view of Fukaya et al ('459)

With respect to claims 1, and 35, Yamazaki et al ('531) teach a method and apparatus for automated semiconductor device probing below, comprising:

(1), Providing apparatus (fig.2) for automated semiconductor device probing, the apparatus comprising:

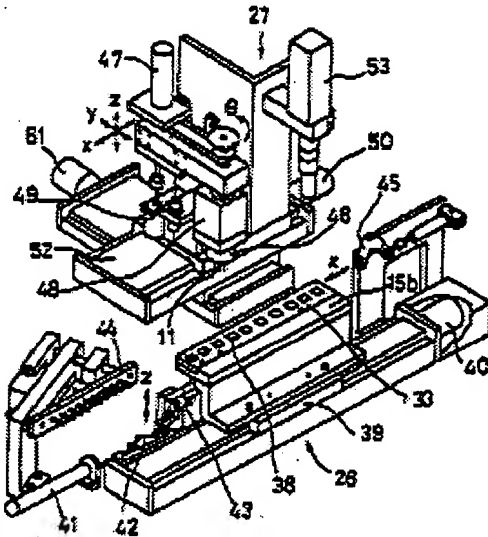
a probe assembly (fig. 3) including an electrical probe (11) for making an electrical connection with a semiconductor device (1),

a machine vision system (fig.2, 46- 53) having a camera (53) for locating the semiconductor device (1) and having a first contact surface (46) (col.5, lines 8-12; col.6, lines 3-17),

a semiconductor support fixture (fig.2, 33-45) for positioning the semiconductor device (1) and having a second contact surface(43) (col. 5, lines 33-34, and 55-60).

Yamazaki et al ('531) do not teach that their first contact surface (46) having a first attachment mechanism to selectively attach together the probe assembly and the machine vision system. Yamazaki et al ('531) also do not teach that their second contact surface (43) having a second attachment mechanism to selectively attach together the probe assembly and semiconductor support fixture.

FIG. 2



However, Fukaya et al ('459) disclose a testing carrier for semiconductor integrated circuit (figs .5B, 6, 18A) below and expressly teach a first contact surface with a first attachment mechanism (fig.6, 15B or fig .18A, 50) and a second contact surface with a second attachment mechanism (Fig. 5B, 11D; Fig.18A, 47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporated the teaching of first and second attachment mechanism of Fukaya et al ('459) in the automatic probing apparatus of Yamazaki et al ('531) because good electrical connection between the testing carrier or probing assembly and the semiconductor device can be maintained during testing (see Fukaya et al' col. 5, lines 37-41), and because by fixing the semiconductor device to a substrate, displacement or

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disconnection of the semiconductor device is hard to occur due to vibrations during test. (see Fukaya et al' col. 5 lines 62-67 and col. 6, lines 15-23).

FIG.6

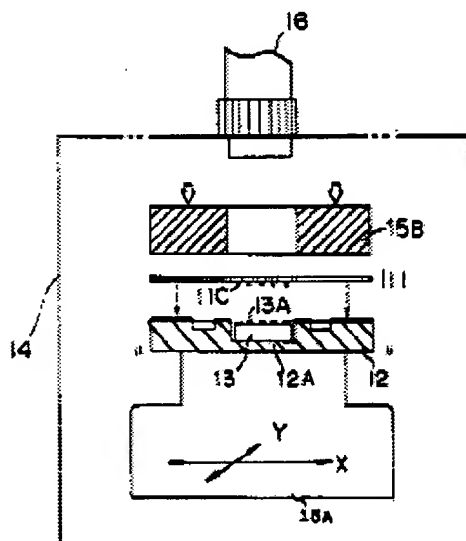
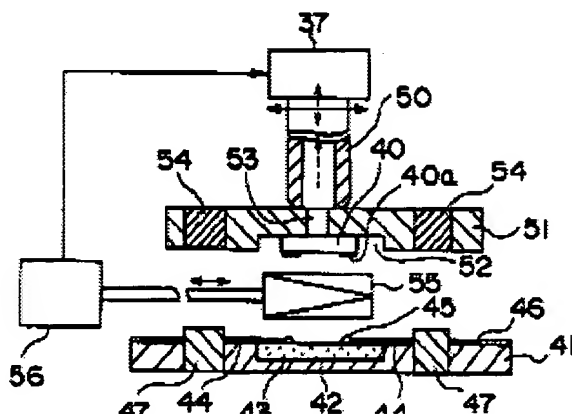
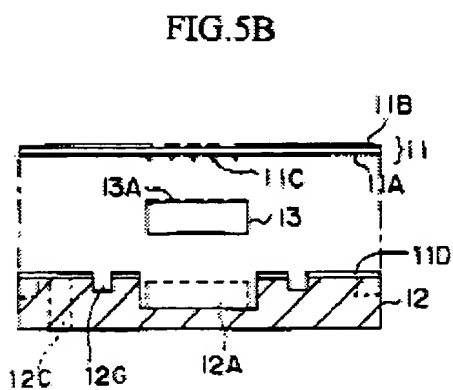


FIG.18A



(2), locating the semiconductor device (1) positioned on the a semiconductor support

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Fixture (33-45) with machine vision system (46-53) (see Yamazaki et al 'col.7, lines 27-32),

(3), guiding the movement of the probe assembly (11) and a semiconductor support

Fixture so to position a contact portion of the semiconductor device (1) and the

Electrical probe in alignment with one another (see Yamazaki et al 'fig3, 37 and col5, lines 59-60) and

(4), moving the probe assembly (11) and the semiconductor support fixture (33-45)

So as to position the electrical probe and the contact portion of the semiconductor

Device (1) in electrical connection with one another (see Yamazaki et al fig.3 and col, 6, lines 10-25).

With respect to claims 2,12,and 36,Yamazaki et al ('531) teach that the semiconductor support fixture (33-45) being selectively movable in plane orthogonal to a line between the probe assembly (1) and the semiconductor support fixture (33-45).

With respect to claims 4 and 18,Ymazaki et al ('531) teach the machine vision system (46-53) (col.3, lines 63-65; col.7, lines 27-32) for locating the semiconductor device (1) and guiding the movement of the probe assembly (11) and a semiconductor support fixture so to position a contact portion of the semiconductor device (1) and the electrical probe in alignment with one another (fig3, 37 and col5, lines 59-60).

With respect to claim 5,Yamazaki et al ('531) teach two electrical probes (11).

With respect to claims 6-7, Fukaya et al ('459) teach to use electromagnet for attachment mechanism (Fig 8, 47, 54 and col.16, lines 10-14).

With respect to claim 8, Fukaya et al ('459) teach to provide a latch for fail safe mechanism.



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With respect to claim 9, Yamazaki et al ('531) teach alignment mechanism to align the probe assembly (11) and the machine vision system (46-53) (col7. lines 21-29).

With respect to claim 10, Yamazaki et al ('531) teach their semiconductor support fixture (33-45) is mounted on a motion stage (39,40).

With respect to claims 3,11,13-17, 19,37 and 48, Yamazaki et al ('531) teach their machine vision system, probe assembly and semiconductor support fixture are each selectively movable in plans by using servo motors (40, 47, 50 and 51).

With respect to claims 20 -23,29-31,38-40, and 46-47, the claimed features such as: contacting operation performed by the probe assembly, attaching and releasing operations performed by the first attachment mechanism and second attachment mechanism and electrical connection between the electrical probe and the contact portion of the semiconductor device can be performed by Fukaya et al ('459) ' teaching of using a driving mechanism (37), a location recognizing camera (55) and an image processing apparatus (56) to control the operation of semiconductor device testing(see Fukaya et al 'col.10, lines 39-60 and col.16, lines 1-14).

With respect to claims 25, 32, and 42, It is inherently that an electrical signal is applied by the electrical probe (11) to the semiconductor device (1) when the electrical probe (11) contacts the semiconductor device (1) (Yamazaki et al 'fig.3).

With respect to claims 26, 33, and 43, Yamazaki et al ('531) teach the electrical probe (11) reads an electrical signal back from the contact portion of the semiconductor device (1) (col.7, lines 61-64).

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With respect to claims 27,34 and 44,Yamazaki et al ('531) teach the semiconductor device (1) is assembled with the electrical probe (11) in electrical contact with one another (fig.3).

With respect to claims 24, 28, 41and 45,Yamazaki et al ('531) teach to use servo motor (Fig.2, 40, 47,51) to perform the claimed operations such as: the probe assembly and the semiconductor support fixture which are moved as single unit away from and back to the machine vision system.

With respect to claims 49-50,Yamazaki et al ('531) teach the step of removing the semiconductor device (1) from the semiconductor support fixture, placing another semiconductor device (1) on the semiconductor support fixture and moving the semiconductor support fixture to probe another semiconductor device (1) contained on the semiconductor support fixture(fig 1, and col.8 , lines 9-34).

### ***Prior Art of Record***

Nakajima et al disclose a probe apparatus including a camera arranged to view the wafer under test and probing assembly contacting and aligning operations.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to emily y chan whose telephone number is 7033056123. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, cuneo kammie can be reached on 7033081233. The fax phone numbers

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for the organization where this application or proceeding is assigned are 7033085841

for regular communications and 7033085841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 7022056123.

ec

November 18, 2002



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